
In vitro culture of epicardial cells from adult zebrafish heart on a fibrin matrix.

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Public Summary:

We describe here a protocol for culturing epicardial cells from adult zebrafish hearts, which have a unique regenerative capacity after injury. Briefly, zebrafish hearts first undergo ventricular amputation or sham operation. Next, the hearts are excised and explanted onto fibrin gels prepared in advance in a multiwell tissue culture plate. The procedure allows the epicardial cells to outgrow from the ventricle onto a fibrin matrix in vitro. This protocol differs from those used in other organisms by using a fibrin gel to mimic blood clots that normally form after injury and that are essential for proper cell migration. The culture procedure can be accomplished within 5 h; epicardial cells can be obtained within 24-48 h and can be maintained in culture for 5-6 d. This protocol can be used to investigate the mechanisms underlying epicardial cell migration, proliferation and epithelial-to-mesenchymal transition during heart regeneration, homeostatic cardiac growth or other physiological processes.

Scientific Abstract:

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